

Method of Forming FinFET Gates Without Long Etches

Abstract of the Disclosure

A method for forming a gate for a FinFET uses a series of selectively deposited sidewalls along with other sacrificial layers to create a cavity in which a gate can be accurately and reliably formed. This technique avoids long directional etching steps to form critical dimensions of the gate that have contributed to the difficulty of forming FinFETs using conventional techniques. In particular, a sacrificial seed layer, from which sidewalls can be accurately grown, is first deposited over a silicon fin. Once the sacrificial seed layer is etched away, the sidewalls can be surrounded by another disposable layer. Etching away the sidewalls will result in cavities being formed that straddle the fin, and gate conductor material can then be deposited within these cavities. Thus, the height and thickness of the resulting FinFET gate can be accurately controlled by avoiding a long direction etch down the entire height of the fin.